

TITLE OF THE INVENTION

5 ABSTRACT OF THE INVENTION

Here we describe the molecular identification of a cDNA encoding a novel serine protease we have termed D-G. The deduced amino acid sequence, and its alignment with other well characterized serine proteases clearly indicates that it is a member of the S1 serine protease family. We have found that the protease D-G mRNA is widely expressed in several tissues throughout the body including epidermis, fibroblasts, keratinocytes, colon, small intestine, stomach, lung, kidney, bone marrow, lymph node, thymus, ovary, prostate, uterus and spinal cord. Interestingly, this protease contains a hydrophobic stretch of amino acids which is a putative transmembrane near the NH₂-terminus. Thus, this serine protease is thought to be synthesized as a type II integral protein. We expressed a soluble form of this novel human protease by inserting the portion of the protease D-G cDNA, encoding the catalytic domain, in a zymogen activation construct designed to permit the generic activation of heterologous serine protease catalytic domains. The result is an active preparation of protease D-G that has an activity against a subset of amidolytic substrates. This enzymatically active protease D-G preparation is now amenable to further biochemical analyses for the identification of physiological substrates as well as specific inhibitors.